

Emigration of an *Atta* Colony

While conducting a mark-recapture study of leaf-cutting ant mortality on Barro Colorado Island, Panama, we observed the emigration of an *Atta colombica* colony from its old mound site to a new one more than 270 m distant. Whether this emigration was spontaneous or triggered by our mark-recapture procedures one week earlier is uncertain; however, once in progress the emigration probably followed a natural course.

We discovered the new mound on 2 May 1979 at the end of the old mound's main foraging trail. It was already 5.7 m² in area and had two well-cleared foraging trails. Ants previously marked at the old mound were seen moving freely to and from the new mound and gathering leaves on the new foraging trails. Only 10 percent of the ants collected at the new site were minima workers, while at the old site over 70 percent were minima workers, indicating that smaller workers may not emigrate as readily as larger workers.

Ten days after its discovery, ants began hauling consumed leaf refuse out of the new mound and a new foraging trail had been added. The new mound had increased to 7.4 m² with over 440 m of active foraging trails. Meanwhile, the old mound was almost covered by leaves and had been abandoned except for a few minima workers and a reduced number of refuse workers.

The transfer itself lasted at least eight days and was nocturnal, beginning around dusk each day and ceasing around sunrise. Why emigration remained nocturnal while foraging was diurnal is uncertain; perhaps diurnal emigration was inhibited because the interior workers were photonegative (Rosengren 1977). Mature workers, callow workers, pupae, and larvae were all observed being transported to and from the old nest. One night during peak emigration activity, we counted an average of 67 larvae and pupae passing a transect each minute. About 87 percent were being carried to the new colony while 13 percent were being carried back to the old colony. If the workers transporting these brood averaged 1.1 m/min (Weber 1972), then over 32,000 brood and transporting workers were on the 270 m emigration trail at one time, not counting numerous unburdened workers.

Weber (1972) reported a case in Trinidad where a small *Atta cephalotes* colony disturbed by partial excavation moved 40 m, but no details are given. Rockwood (1973) describes three cases in which *Atta colombica* colonies relocated their nests. One relocation was due to repeated poisoning, another to flooding and the third he ascribes to poor foraging conditions. In this third case, the colony moved 150 m with the bulk of the transfer lasting about one week. Rockwood also quotes Autuori (1941) as noting that *Atta sexdens* colonies may change their nest location. Emigration of *Atta* colonies may be more frequent than generally assumed especially if this phenomenon is often nocturnal. In some cases, colonies appearing to have died out may actually have emigrated.

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Sanford D. Porter and Michael A. Bowers

Department of Zoology
Brigham Young University
Provo, Utah 84602, U.S.A.

Current Contact Information (Oct. 2004)
Sanford D. Porter

Mailing Address:

USDA-ARS, CMAVE
P.O. Box 14565
Gainesville, FL 32604 USA

Street Address:

USDA-ARS, CMAVE
1600 S.W. 23rd Drive
Gainesville, FL 32608 USA

Office: 352 374-5914

Secretary: 374-5903

FAX: 374-5818

E-mail: sdp@nersp.nerdc.ufl.edu (preferred)

E-mail: sdporter@gainesville.usda.ufl.edu (alternate)

Official Web Site: <http://www.ars.usda.gov/pandp/people>

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